



1646

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

RECEIVED

JUN 19 2002

TECH CENTER 1600/2900

#9  
A. J. J.  
6/19/02

Attorney Docket No.: **ISPH-0614**  
Inventors: **Wu et al.**  
Serial No.: **09/992,738**  
Filing Date: **November 14, 2001**  
Examiner: **Not Yet Assigned**  
Group Art Unit: **1646**  
Title: **Human RNASE H1 Mutants**

I, **Jane Massey Licata**, Registration No. **32,257**, certify that this correspondence is being depositing with the U.S. Postal Service as First Class mail in an envelope addressed to the U.S. Patent and Trademark Office, Box 2327, Arlington, VA 22202

On this date: **June 5, 2002**

*Jane Massey Licata*  
**Jane Massey Licata**, Registration No. **32,257**

U.S. Patent and Trademark Office  
Box 2327  
Arlington, VA 22202

Sir:

**INFORMATION DISCLOSURE STATEMENT**

Pursuant to 37 C.F.R. §1.56 and in accordance with 37 C.F.R. §§1.97-1.98, information relating to the above-identified application is hereby disclosed. Inclusion of information in this statement is not to be construed as an admission that this information is material as that term is defined in 37 C.F.R. §1.56(b).

(XX) In accordance with §1.97(b), since this Information Disclosure Statement is being filed either within three months of the filing date of the above-identified application, within three months of the date of entry into the national stage of the above identified application as

set forth in §1.491, or before the mailing date of a first Office Action on the merits of the above-identified application, no additional fee is required.

- ( ) In accordance with §1.97(c), this Information Disclosure Statement is being filed after the period set forth in §1.97(b) above but before the mailing date of either a Final Action under §1.113 or a Notice of Allowance under §1.311, therefore:

- ( ) Certification in Accordance with §1.97(e) is set forth below; or

- ( ) The fee of \$180.00 as set forth in §1.17(p) is attached.

- ( ) In accordance with §1.97(d), this Information Disclosure Statement is being filed after the mailing date of either a Final Action under §1.113 or a Notice of Allowance under §1.311 but before the payment of the Issue Fee, therefore included are: Certification in Accordance with §1.97(e); Petition Requesting Consideration of the Information Disclosure Statement; and the fee of \$130.00 as set forth in §1.17(I)(1).

**(XX)** Copies of each of the references listed on the attached Form PTO-1449 (modified) are enclosed herewith.

- ( ) In accordance with §1.98(d), copies of some or all of the references listed on the attached Form PTO-1449 (modified) are not enclosed herewith because they were previously submitted to the U.S. Patent and Trademark Office in prior

application Serial No. \_\_\_\_\_, filed \_\_\_\_\_, for which a claim for priority under 35 U.S.C. §120 has been made in the instant application.

Please charge any deficiency or credit any overpayment to Deposit Account No. 50-1619. This form is submitted in duplicate.

( ) The relevance of the listed references in a foreign language is as stated in the specification at pages @@.

(**XX**) All listed references are in the English language.

Respectfully submitted,

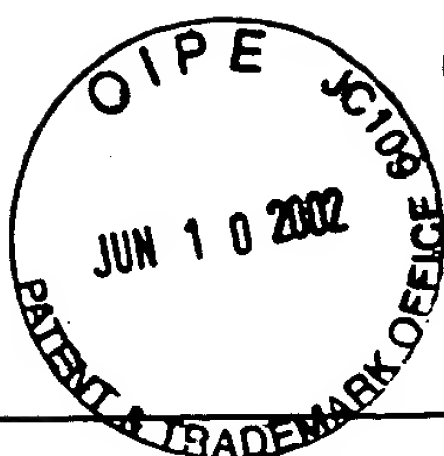
*Jane Massey Licata*

Jane Massey Licata  
Registration No. 32,257

Date: **June 5, 2002**

Licata & Tyrrell P.C.  
66 E. Main Street  
Marlton, New Jersey 08053

(856) 810-1515



RECEIVED

JUN 19 2002

TECH CENTER 1600/2900  
Sheet 01 of 04

<b>Form PTO-1449 Modified</b>		Docket No. <b>ISPH-0614</b>	Serial No. <b>09/992,738</b>
List of Patents and Publications Cited by Applicant (Use several sheets if necessary)		Applicant <b>Wu et al.</b>	
		Filing Date <b>November 14, 2001</b>	Group <b>1646</b>
U.S. Department of Commerce			
<b>OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)</b>			
	AA	Bambara et al., "Enzymes and Reactions at the Eukaryotic DNA Replication Fork", J. Biol. Chem. 1997 272(8):4647-4650	
	AB	Blyn et al., "Poly (rC) binding protein 2 binds to stem-loop IV of the poliovirus RNA 5' noncoding region: Identification by automated liquid chromatography-tandem mass spectrometry", Proc. Natl. Acad. Sci. USA 1996 93:11115-11120	
	AC	Büsen et al., "Ribonuclease H Levels during the Response of Bovine Lymphocytes to Concanavalin A", Eur. J. Biochem. 1977 74:203-208	
	AD	Büsen et al., "Purification, Subunit Structure, and Serological Analysis of Calf Thymus Ribonuclease H I*", J. Biol. Chem. 1980 255(19): 9434-9443	
	AE	Cerritelli et al., "The non-RNase H domain of Saccharomyces cerevisiae RNase H1 binds double-stranded RNA: Magnesium modulates the switch between double-stranded RNA binding and RNase H activity", RNA 1995 1:246-259	
	AF	Cerritelli et al., "Cloning, Expression, and Mapping of Ribonucleases H of Human and Mouse Related to Bacterial RNase HI", Genomics 1998 53:300-307	
	AG	Crouch et al., "Ribonucleases H", Nucleases 1985 211-241	
	AH	Dabora et al., "Structure of the Acid State of <i>Escherichia coli</i> Ribonucleae HI", Biochemistry 1996 35:11951-11958	
	AI	Eder et al., "Ribonuclease H from K562 Human Erythroleukemia Cells", J. Biol. Chem. 1991 266(10): 6472-6479	
<b>EXAMINER</b>		<b>DATE CONSIDERED</b>	



RECEIVED

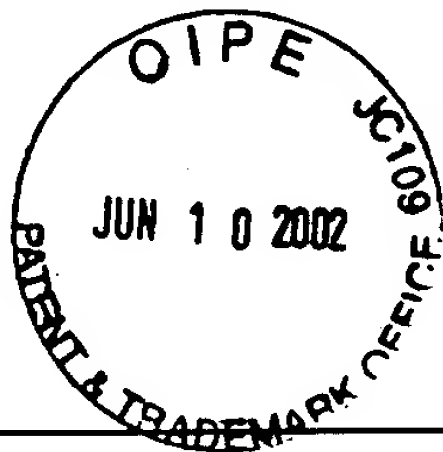
JUN 19 2002

TECH CENTER 1600/2900  
Sheet 02 of 04**Form PTO-1449 Modified**List of Patents and Publications  
Cited by Applicant  
(Use several sheets if necessary)

U.S. Department of Commerce

Docket No.  
**ISPH-0614**Serial No.  
**09/992,738**Applicant  
**Wu et al.**Filing Date  
**November 14, 2001**Group  
**1646****OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)**

	AJ	Eder et al., "Substrate specificity of human RNASE H1 and its role in excision repair of ribose residues misincorporated in DNA", Biochimie 1993 75:123-126
	AK	Frank et al., "Cloning of the cDNA encoding the large subunit of human RNase HI, homologue of the prokaryotic RNase HII", Proc. Natl. Acad. Sci. USA 1998 95:12872-12877
	AL	Frank et al., "Purification and characterization of human ribonuclease HII", Nucleic Acids Research 1994 22(24):5247-5254
	AM	Hirata et al., "The Phosphorylation and DNA Binding of the DNA-binding Domain of the Orphan Nuclear Receptor NGFI-B", J. Biol. Chem. 1993 268(33):24808-24812
	AN	Itaya et al., "Molecular cloning of a ribonuclease H (RNase HI) gene from an extreme thermophile Thermus thermophilus HB8: a thermostable RNase H can functionally replace the <i>Escherichia coli</i> enzyme in vivo", Nucleic Acids Research 1991 19(16):4443-4449
	AO	Itaya et al., "Selective cloning of genes encoding RNase H from <i>Salmonella typhimurium</i> , <i>Saccharomyces cerevisiae</i> and <i>Escherichia coli</i> rnh mutant", Mol. Gen. Genet 1991 227:438-445
	AP	Kanaya et al., "Importance of the Positive Charge Cluster in <i>Escherichia coli</i> Ribonuclease HI for the Effective Binding of the Substrate", J. Biol. Chem. 1991 266(18): 11621-11627
	AQ	Kanaya et al., "Expression, Purification, and Characterization of a Recombinant Ribonuclease H from <i>Thermus thermophilus</i> HB8", J. Biol. Chem. 1992 267(14):10184-10192
	AR	Katayanagi et al., "Crystal Structure of <i>Escherichia coli</i> RNase HI in Complex With Mg <sup>2+</sup> at 2.8Å Resolution: Proof for a Single Mg <sup>2+</sup> Binding Site", PROTEINS: Structure, Function and Genetics 1993 17:337-346
<b>EXAMINER</b>		<b>DATE CONSIDERED</b>



RECEIVED

JUN 19 2002

TECH CENTER 1600/2900  
Sheet 03 of 04

<b>Form PTO-1449 Modified</b>		Docket No. <b>ISPH-0614</b>	Serial No. <b>09/992,738</b>
List of Patents and Publications Cited by Applicant (Use several sheets if necessary)  U.S. Department of Commerce		Applicant <b>Wu et al.</b>	
		Filing Date <b>November 14, 2001</b>	Group <b>1646</b>
<b>OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)</b>			
	AS	Katayanagi et al., "Three-dimensional structure of ribonuclease H from <i>E. coli</i> ", Nature 1990 347:306-309	
	AT	Landt et al., "A general method for rapid site-directed mutagenesis using the polymerase chain reaction", Gene 1990 96:125-128	
	AU	Lima et al., "Binding Affinity and Specificity of <i>Escherichia coli</i> RNASE H1: Impact on the Kinetics of Catalysis of Antisense Oligonucleotide-RNA Hybrids", Biochemistry 1997 36:390-398	
	AV	Nakamura et al., "How does RNase H recognize a DNA-RNA hybrid?", Proc. Natl. Acad. Sci. USA 1991 88:11535-11539	
	AW	Rong et al., "On the Molecular Weight and Subunit Composition of Calf Thymus", Biochemistry 1990 29(2):383-389	
	AX	Sambrook J., Fritsch E.F. and Maniatis T. In Molecular Cloning. A Laboratory Manual, 2nd ed. Cold Spring Harbor Laboratory Press, Cold Spring Harbor, NY 1990 18.47-18.59 and A.1-A.3	
	AY	Scaringe et al., "Novel RNA Synthesis Method Using 5'-O-Silyl-2'-O-orthoester Protecting Groups", J. Am. Chem. Soc. 1998 120:11820-11821	
	AZ	Stein et al., "Enzyme from Calf Thymus Degrading the RNA Moiety of DNA-RNA Hybrids: Effect on DNA-Dependent RNA Polymerase", Science 1969 166:393-395	
	BA	Turchi et al., "Enzymatic completion of mammalian lagging-strand DNA replication", Proc. Natl. Acad. Sci. USA 1994 91:9803-9807	
<b>EXAMINER</b>		<b>DATE CONSIDERED</b>	



Sheet 04 of 4

TECH CENTER 1600/2900

JUN 19 2002

RECEIVED

**Form PTO-1449 Modified**List of Patents and Publications  
Cited by Applicant  
(Use several sheets if necessary)

U.S. Department of Commerce

Docket No.  
**ISPH-0614**Serial No.  
**09/992,738**Applicant  
**Wu et al.**Filing Date  
**November 14, 2001**Group  
**1646****OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)**

BB	Wu et al., "Molecular Cloning and Expression of cDNA for Human RNase H", Antisense & Nucleic Acid Drug Development 1998 8:53-61
----	---

BC	Wu et al., "Properties of Cloned and Expressed Human RNASE H1", J. Biol. Chem. 1999 274(40):29280-28278
----	---

BD	Yang et al., "Structure of Ribonuclease H Phased at 2 Å Resolution by MAD Analysis of the Selenomethionyl Protein", Science 1990 249:1398-1405
----	--

**EXAMINER****DATE CONSIDERED**